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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,662	07/13/2001	Yasuhito Inagaki	09792909-5081	5976

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EXAMINER

KORNAKOV, MICHAEL

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/905,662

Applicant(s)

INAGAKI ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6,8-16 and 18-22 is/are pending in the application.
4a) Of the above claim(s) 14-16 and 20-22 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 6,8-13,18 and 19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) 6,8-16 and 18-22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant amended claims 1 and 18 in paper No. 05/22/2006 by introducing new structural elements into the claims. Claims 6, 8-16, 18-22 are pending. Claims 14-16, 20-22 are withdrawn from consideration as being drawn to non-elected inventions. Claims 6, 8-13, 18, 19 are examined on the merits.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 6, 8-10, 12, 13, 18, 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hoffman et al (U.S. 6,350,425).

Hoffman teaches a substrate processing system comprising a mixing tank 306 to contain aqueous solution of ammonium fluoride or buffered HF, the mixing tank can be the point of use, in which **the substrates are processed** (col.11, lines 65-67 and Fig.4). This clearly reads on the substrate cleaning bath of claims 1 and 18. Further disclosed are ammonia feeding means 314 for feeding ammonia from ammonia source 302 to the mixing tank; measuring means 328 for measuring hydrofluoric acid concentration; **control means** for automatically operate the valves, including ammonia supply valve 318, to regulate the amount of materials introduced into the mixing tank. When the mixing tank is used for processing substrate, as described in Fig.4, the wafer is held on a wafer support (448 on Fig.4). This reads on the substrate carrier of the instant claims. The concentration measuring means may include conductivity, density, index of

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refraction or infrared spectroscopy measuring equipment, volumetric or gravimetric scale (col. 9, lines 10-67; col.10, lines 1-6, 18-27, 34-37, 53-61; col.11, lines 8-11, 39-44, 65-67). The circulation system of Hoffman includes a pump and the said system is configured to circulate the cleaning liquid from the mixing tank, through the measuring means and back to the mixing tank (Fig. 2 and Fig. 3). It is noted that all the above structural limitations are operable according to Hoffman during the substrate cleaning procedure (col. 3, lines 55-60, Fig.1-4, col.8, lines 65-67, col.9, lines 1-8, col.10, lines 7-10, col.11, lines 65-67, col.12, lines 1-10, 51-59, col.13, lines 23-27). Thus, the limitations of the instant claims 6, 8-10,12,13, 18, 19 are met by Hoffman.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al (U.S. 6,350,425) in view of Pham et al (U.S. 6,156,944) or Swain et al (U.S. 5,895,639), each one individually.

While teaching variety of measuring means for measuring concentration of hydrofluoric acid, Hoffman does not specifically indicate measuring means consisting of liquid (ion) chromatography. However measuring concentration of HF by liquid (ion) chromatography and, therefore, means for applying liquid (ion) chromatography are also known in the art. Thus, Pham and Swain both utilize liquid ion chromatography to determine the concentration of HF within the solution. The simplicity of implementation of liquid ion chromatography is also known in the art. Therefore, one skilled in the art may choose liquid ion chromatography among the other known concentration measuring techniques and in lieu of measuring techniques proposed by Hoffman in

order to simplify measuring concentration of HF and provide relatively inexpensive measuring means in the teaching of Hoffman.

Response to Arguments

5. Applica'n's' arguments filed 05/22/2006 have been fully considered but they are not persuasive. The crux of Applicants' argument appears to hinge on the statement that Hoffman fails to show the structural limitations of the instant claims, wherein the structural limitations are listed on page 8 of remarks in the first paragraph. These structural limitations are in details described above and each position on figures corresponding to claimed structural elements is shown. Applicants further elaborate that nowhere does Hoffman show or even suggest that the mixing tank is used as the process point for the wafers. In response to this Applicants' attention is respectfully drawn to col. 11, lines 65, 66, 67: " Further, the mixing tank of the buffered-HF or NH₄F generator system ITSELF (*emphasis added-M.K.*) CAN BE THE POINT OF USE, IN WHICH THE SUBSTRATES ARE PROCESSED. Applicants' argument with regard to 103(a) rejection is not persuasive, because it alleges that Hoffman cannot be a primary reference. This issue is discussed above. Therefore it is urged and maintained that claims 6, 8-10,12,13, 18,19 are anticipated by Hoffman and claim 11 is unpatentable over Hoffman.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

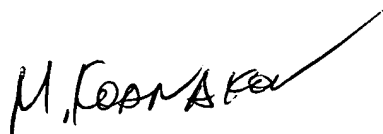
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mikhail Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "M. Kornakov", with a long, sweeping horizontal stroke extending to the right.

Mikhail Kornakov
Primary Examiner
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07/26/2006